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Can Land Use Management Reduce Energy Consumption for Transportation?

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1. This morning I intend to offer a few empirical observations and some deductive propositions. To say the obvious, in transporting people in cities there are two major ways to save energy: a more efficient use of vehicles is one; restructuring urban patterns in order to reduce the number of miles people need to travel is another. If land use management can be applied to the problem of energy conservation, it would obviously be by changes in the relative location of homes, jobs, recreational amenities, etc., so as to minimize the distances people would normally have to travel. Before discussing the feasiblity of such arrangements, I would like to present a few facts about people's preferences, which we learned in the course of studying the growth of a small city in Los Angeles County.

2. The City of Cerritos was in 1971 the fastest growing residential community in Los Angeles County. Occupying 8 3/4 square miles of flat land at the border of Orange County, before urbanization started in the late 1960s, its land was used for dairy farming. As late as January 1966 it had a total population of 3,591, and 895 homes. Seven years later, its population had increased by a factor of 12 and was estimated at 42,000. The growth of the city was induced by the opening

of the Santa Ana Freeway in July 1955, which played a major role in the urbanization of Orange County, and resulted directly from the construction of the San Gabriel River and Artesia Freeways in the late 1960s. During the same years, the San Gabriel River and the Coyote Creek were channelized by the Army Corps of Engineers, and a drainage and sewer system, installed with Federal assistance, was completed by February 1969. The previously marshy land of Cerritos, suitable only for dairy farming, became too valuable to be kept in agricultural usage and was rezoned by the City Council for urban development, predominantly residential.

3. The torrential urbanization which followed is reflected in the building permit valuation figures for the year 1971. The total amounted to over $80 million for Cerritos, the highest figure in Los Angeles County, after the City of Los Angeles with $866 million, and the unincorporated parts of the County with $284 million. The dairy farmers who had sold their land, making spectacular capital gains, left with their cows and were replaced by an entirely new population of urban homeowners, who transformed Cerritos into a bedroom community.

4. In October 1972 the City conducted a special census through the State of California Department of Finance in order to have a certified population figure as basis for the subventions received from the State for gas tax and motor vehicle license fees, which amount to almost

$20 per person. The Environmental Quality Laboratory was able to have the census takers distribute at that time a questionnaire with a return envelope addressed to the California Institute of Technology, in which we asked a number of questions related to energy consumption Unfortunately, we only learned of the census 3 days before it took place and were therefore unable to prepare a questionnaire meeting advanced standards of survey techniques. But we were fortunate to have - at almost no cost to EQL - 2,088 questionnaires completed and returned, covering 20 percent of the households and of the people living in Cerritos at that time.

5. Before presenting some of the facts obtained from that questionnaire, a brief profile of Cerritos as of October 1972 should be useful. Cerritos may be typical of the future cities in which will live a younger, well-educated middle class. Before population growth stops, if present trends continue, sometime in the first half of the 21st century, a minimum of 40 million people will have been added to the total population of the United States, or the equivalent of some 1,000 Cerritos. Most of them will be distributed among the metropolitan areas of the country, filling the vast amounts of land still vacant in those areas, in which only ten percent is actually developed.

6. Cerritos has a very young population, with a median age for females of 24 years, and a median age for males of 25 years. 45% of the population are aged 21 years or younger, and only 3% are over 55, out of a

total population of 37,739 in October 1972. Of the 11,007 housing units counted at that time, single family dwellings were predominant in a ratio of 10 to 1, and had an estimated average value of $33,400. 81.78% of the population was Caucasian; less than 2% black. 79% of the heads of household had full high school education or better. The largest proportion of the labor force consists of professional, technical, and white-collar workers. The average family income in Cerritos in 1971 amounted to $16,023. There were 3.61 persons on the average in a household. In November 1972, the voters of Cerritos gave the Republican presidential candidate a 2.5 to 1 margin over the Democratic candidate. They also rejected Proposition 20, the Coastal Zone Act, and Proposition 21, in favor of school busing. Altogether there are clear indications that although young in age the community is conservative in outlook.

7. Only about 10% of the residents of Cerritos worked in the City or its immediate neighborhood and another 6.38% in Orange County which borders on the City. The rest were employed all over Los Angeles County. One of the questions we asked them was "What is the distance in miles from your home to your place of work?" and a similar question for their spouses. The answers are on Tables I and II in the Appendix. You will note that 29.4% of the heads of household drive less than 10 miles to work, 38.3% drive 11 to 20 miles to work, 27.0% drive 21 to 30 miles and 5.4% over 31 miles. Their spouses tend to work closer to home, with 51.6% driving less than 10 miles, 29.8% from 11 to 20 miles, 15.6% 21 to 30 miles, and 2.9% over 31 miles.

8. To the question "If you had the choice, which method of transportation to and from work would you prefer?", the answers received indicate that 56.7% preferred the private auto, 19.6% buses or rapid transit, 10% would rather carpool, and 8.7% would prefer to walk or bike.

9. We also asked "What year car do you drive?" and "What year is your spouse's car?" and found that in October 1972 almost half of the men's cars and a third of the women's were 1970 or newer models, which suggests that in Cerritos type communities the replacement rate of automobiles is more rapid than the national average and it would be relatively easy to replace the existing stock of motor vehicles with cars having better performance characteristics in terms of miles per gallon or emissions.

10. We also asked "How many miles per gallon do you obtain from your car?" and "How many miles per gallon are obtained from your spouse's car?". 43% and 42% respectively indicated 11 to 15 miles per gallon, while only about one fifth of all respondents, in both groups, obtained more than 20 miles per gallon.

11. Central to the thesis which I am presenting today are the answers to the question "Did you move to Cerritos because you changed jobs?". Only 1 in 10 answered yes. People do not move, within the metropolitan area of Los Angeles, primarily because they change jobs, but for other reasons. As shown in Table XVI, which cross tabulates distances in miles to work by miles per gallon, people also do not prefer economy

cars because they have to drive greater distances to work. The approximately 42% of all cars getting 11 to 15 miles per gallon were distributed fairly evenly among all groups of distances to work. Within the metropolitan area of Los Angeles, people seem to move for other reasons than closeness to their work as long as they remain within a radius of about 30 miles. For Cerritos, a 30 mile radius extends to Malibu, Sylmar, Upland, Ontario, Corona and Laguna Beach.

12. Cerritos, being a new bedroom community, it was predictable that most residents had lived there only a short time. Indeed 96.5% had lived there less than 5 years. But from the question "How long did you live in your previous home?" we learned that about one third had lived there less than 2 years, another third from 2 to 5 years, and the last third over 5 years.

13. To find out why people moved to Cerritos we asked a complex set of questions, the answers to which are presented, as codified by us, on Table XXI. Note that 47.3% said that their job was further away than in their previous location, whereas for only 21.0% it was closer and for 24.4% it was about the same.

14. Asked "What was the greatest disadvantage of your former home?", 35.2% mentioned lack of enough living space, 21.1 percent mentioned renting instead of owning, but only 2.3 % mentioned distance to work. Symmetrically, the question "What is the greatest advantage of your

present home?", brought from 36.4% the answer "more dwelling space", from 11.1% "owning the house", and from only 2.4% "proximity to work".

15. The question "Provided jobs were available, where would you prefer to live?" yielded answers indicating that 22.9% would prefer small towns, 30.2% suburbs, 14.8% average cities, and only 2.1% large cities. The questions were not sharply defined, therefore we do not know how to group the answers in terms of attitudes toward metropolitan areas versus real small towns, but 16.9% expressed a preference for rural areas, and 4.7% for the wilderness.

16. Finally, to the question, "Provided jobs were available, in which State would your family most enjoy living?" indicated that roughly 50% would want to stay in California, with Oregon, Colorado, Hawaii, Arizona, and Washington the only other states attracting between 8 and 2% each of the total sample.

17. We do not overestimate the significance of what we learned from the Cerritos survey. But it does suggest that the people who answered our questionnaire did not chose their place of residence in order to be closer to work or to minimize otherwise the distances they drive. How then could one use urban planning, zoning regulations, and other forms of land use control to reduce the radius in which work, shopping, recreation, etc. take place? Let us have a look at the General Plan of Cerritos, as it evolved after several years of efforts by the City's

Planning Commission and its City Council, assisted by a competent staff and three consulting firms.* The areas colored yellow are zoned for single family residences, those that are red for commercial usage, blue for industrial activities, and green for parks, including an 82 acre regional park to be developed with county funds. Of the 5,622 acres of the city, 48% are reserved for residential usage, 9% for commercial, 15% for industrial, and about 4% for parks.

18. I can think of no way to create opportunities for local employment for a significant fraction of the labor force, or that would keep the residents of Cerritos from spending their weekends outside of their City, driving substantial distances to beaches, mountains, or other points of attraction. On the other hand, most of their shopping and that of their neighbors will be done in Cerritos' very attractive new shopping center. A small city, deciding by home rule how to use its land, serves special interests such as the maximalization of land values for property owners or marginal fiscal benefits for taxpayers, and perhaps most important of all, the desire to create and maintain a certain amount of social homogeneity by controlling the value and characteristics of residential development. The result is that people cannot afford to live where they work, or to work where they live. To break this pattern, much stronger regulations of land use would be necessary than are likely to be compatible with the political and economic constraints which will continue to prevail in the immediate future. I would like now to discuss this problem in broader perspective, offering some deductive propositions.

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*For the map, see Cerritos General Plan, City of Cerritos, California.

19. Fred Bosselman and his co-authors of a study on the constitutional limits of land use control, prepared for the Council on Environmental Quality, entitled "The Taking Issue," remark that there is an American myth that a man can use his land any way he pleases regardless of his neighbors, although in fact courts tend to support regulations controlling uses of land treated as "nuisances" under the traditional common law.

20. The Fifth Amendment to the U.S. Constitution includes the words "nor shall private property be taken for public use without just compensation". Traditionally, the courts interpreted these twelve words as meaning that an owner was entitled to protection if his property had actually been taken in the physical sense of the word. In that case the government had to pay him fair market value for the land either by purchase on the open market, or following condemnation proceedings.

21. Late in the 19th century the Supreme Court of the United States still denied compensation to owners of business properties that became virtually valueless because of state regulatory statutes, which were held to be valid police regulations, not "taking" of property within the Constitutional prohibition.

22. In a famous case, that of Pennsylvania Coal Company versus Mahon, written by Justice Oliver Wendell Holmes in December 1922, a new doctrine was introduced concerning the issue of what regulations are

permitted under the police power of the State, in the interest of people's health, safety, and welfare, which therefore does not require compensation to an owner of land, and what regulations should be considered "taking" under the Fifth Amendment, and thus only admissible if just compensation is paid. Justice Holmes ruled that "while property may be regulated to a certain extent, if regulation goes too far, it will be recognized as a 'taking'".

23. Since 1922 the Supreme Court has refused to hear cases arising under the "taking" clause and has left it to lower Federal courts and especially to state courts to apply the balancing test of weighing the public benefit of regulations against the extent of loss of property values. Naturally over more than 50 years this has resulted in hundreds of conflicting opinions. The situation has been characterized as chaotic by the authors of the earlier-mentioned study prepared for the Council on Environmental Quality.

24. Despite the myth that an owner can use his land in any way he pleases, zoning has been introduced in the last 50 years almost everywhere in the United States and is an important instrument of land use control. State laws, following a uniform federal model, have since the 1920's usually delegated the zoning power, which is an exercise of the police power of the state, to local governments. The notable exception is Hawaii, where since 1961 the State itself has assumed substantial zoning functions. In 1926, the U.S. Supreme Court in the

leading case of the Village of Euclid versus Ambler Realty Company upheld as a general principle the validity of comprehensive zoning regulations.

25. Another instrument for land use control is the general plan, which in California is required by statute from all cities, except charter cities. It is supposed to be a comprehensive, long-range policy guide for development of the city as a whole, but many students of urban planning assert that "general plans are seldom taken seriously". In California AB 1301 required that by June 30, 1973 zoning be made consistent with general plans, but the League of Women Voters of Los Angeles County concluded after a detailed study that the law resulted for the most part in general plans being made consistent with existing zoning.

26. The Report of the Task Force on Land Use and Urban Growth, chaired by Laurence Rockefeller, issued in July 1973 under the auspices of the Citizen's Advisory Committee on Environmental Quality, concluded that "more people, with more money, following their expressed preference for low-density living in a metropolitan area can mean only one thing - bigger metropolitan areas". It forecasts that "if past trends continue, 36 million of the 54 million population increase expected by the year 2000 will live in suburbs" and that 85.1% of the population of the U.S. in the year 2000 will live in 25 urban regions, a term used by the Population Commission for "a regional constellation of urban centers and their hinterland"

27. Unless reversed, the present trend points therefore toward a replication of the settlement pattern and way of life known to us here in Los Angeles, based on mechanically reliable motor vehicles, cheap gasoline, and federally subsidized freeways, which gave us the smog. As ambient air quality deteriorated, the pressure mounted to reduce noxious emissions and achieve certain standards, by a number of measures: improving the performance of the internal combustion engine, or replacing it with another power unit in motor vehicles; reducing the amount of passenger miles travelled in afflicted air basins through mass transit and other forms of public transportation; and controlling the location of buildings and other facilities likely to increase the volume of traffic, in areas in which the desired standards of ambient air quality could not be otherwise attained and maintained.

28. In the last two years, the Environmental Protection Agency got interested in that third approach, meant to supplement and reinforce the other two. It involves the introduction of new forms of land use controls under the authority of the Clean Air Act as amended in 1970. State and local government, acting in accordance with Federal guidelines and subject to Federal review through the EPA, will be expected to control the location of facilities, buildings, structures, and installations which would attract or generate motor vehicle traffic and thus result in emission of pollutants in excess of certain levels of concentration. Such facilities would include retail, commercial, and industrial facilities, office and government buildings, apartments and condominiums,

education facilities, recreation, amusement and sports facilities, as well as airports, highways and roads. All of these are referred to as "indirect sources", to distinguish them from "stationary sources" and "mobile sources", which generate themselves polluting emissions and are thus unquestionably subject to controls under the Clean Air Act.

29. The EPA regulations were promulgated on February 25, 1974 and will become effective on July 1, though applicable only to projects commencing construction after January 1, 1975. Under these regulations, the location of a construction which is considered an "indirect source" (and for present purposes more precise definitions in quantitative terms can be omitted) will have to conform not only with general plans and zoning regulations, but also with the specific regulations imposed under the Clean Air Act. This introduces a new dimension to land use controls. If successful, this approach might also be useful as part of a strategy to change the country's pattern of transportation in ways that would conserve energy.

30. The EPA's "indirect source" regulations do not aim at stopping growth, but at locating new facilities in areas where they would not jeopardize the attainment or maintenance of national ambient air quality standards. For present purposes, we can ignore the complex analytical problems of how one assesses the impact of a specific project on a region's ambient air quality. What is of

interest is the question whether similar regulations could be used to determine the future location of urban growth in such fashion as to reduce within a metropolitan area the total amount of vehicle miles travelled and thus save energy.

31. The argument is sometimes advanced that people would live closer to work if they could afford it, drive shorter distances for their shopping if local facilities would be attractive, and perhaps even reduce the amount of their recreational travel if local parks would be available. If, contrary to our findings in Cerritos, this is true, then it is certainly worth examining how these results could be achieved, by a combination of land use controls and other measures, including fiscal and monetary incentives and penalties. One could imagine tax benefits and penalties of a completely new kind to reward those who choose to live close to their place of employment. There is also the recent experience of distribution under conditions of scarcity and price increases of gasoline having an impact on transportation patterns.

32. But to return to land use controls, what would one try to achieve through general plans and zoning regulations? Could ways be found to induce people to live closer to their place of work? And once located near their place of employment, could they be expected to forego seeking, because of driving distances involved, a better paying or more

satisfying job elsewhere, or simply a replacement for a job lost? We saw that people are willing to travel up to about 30 miles to work. We also saw that people move when they can buy a bigger home, or simply to change their status from tenants to owners. The very idea of closeness to work is probably not compatible with the nature of advanced industrial and post-industrial societies; a nostalgic longing for the urban way of life of past centuries.

33. In metropolitan areas, it is difficult to visualize how land use controls could be used effectively to determine the location of new constructions, either in order to prevent the concentration of "indirect sources" of air pollution, or in order to change current transportation patterns. But besides technical planning difficulties encountered in translating vague and imperfectly analyzed ideas into operationally meaningful plans, it is also likely that such attempts to control the use of land would not be upheld by the courts. The trend of the last decade has been for courts to uphold regulations which are consistent and prove capable of achieving well-defined broader goals. Poorly thought out regulations are not likely to be sustained if challenged in court, and the usefulness of "indirect source" controls is yet to be tested.

34. To become an effective policy instrument for energy conservation, land use management would have to be capable of using more drastic measures than are possible in the legal and institutional framework

currently prevailing in the United States. Long term denial of the right to develop certain lands without just compensation to the owner is not likely to be sustained by the courts, under the doctrine of "inverse condemnation". The "taking" of such lands and their placement in publicly held land banks would require public expenditures which, even if economically feasible, do not seem politically plausible. Although such measures would probably have only marginal impact on transportation patterns in metropolitan areas, without them it is meaningless to seek transportation remedies through land use management.

35. In conclusion, it is politically, economically, and technologically easier to find ways to conserve energy in transportation by improving the performance characteristics of motor vehicles and by developing various forms of public transportation than by an assault on property rights with regard to land. The safeguards protecting these rights could only be overcome by structural changes in American society of such amplitude as to constitute a revolution affecting some of the most important aspects of our way of life, namely, freedom of movement and of settlement, job mobility with its major impact on labor relations, a leisure-oriented life style, and a market substantially governed by consumers' choices.

APPENDIX

TABLE I - Distance To Work

What is the distance in miles from your home to your place of work?

Miles	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
0-5	223	12.1	12.1
6-10	319	17.3	29.4
11-15	333	18.1	47.5
16-20	372	20.2	67.7
21-25	305	16.[illegible]	84.3
26-30	191	10.4	94.6
31-65	99	5.4	100.0
*All Other	246	-	100.0
TOTAL	2088	100.0	100.0

* "All Other" responses excluded from percentage calculations.

TABLE II - Distance To Spouse's Work

What is the distance in miles from your home to your spouse's place of work?

Miles	No. of Respouses	Percent of Total (Adjusted)	Cumulative Percent
0-5	293	31.7	31.7
6-10	184	19.9	51.6
11-15	147	15.9	67.5
16-20	129	13.9	81.4
21-25	91	9.8	91.2
26-30	54	5.8	97.1
31-65	27	2.9	100.0
*All Other	1163	-	100.0
TOTAL	2088	100.0	100.0

* "All Other" responses excluded from percentage calculations.

TABLE III - Type of Transport

If you had the choice, which method of transportation to and from work would you prefer? (First Choice)

Choice	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
	12	0.6	0.C
Auto	1157	56.7	57.2
Motorcycle	43	2.1	59.4
Carpool	204	10.0	69.3
Bicycle	86	4.2	73.6
Public Bus	205	10.0	83.6
Walking	91	4.5	88.1
Company Bus	52	2.5	90.6
Rapid Transit	146	7.1	97.7
Other	46	2.3	100.0
*All Other	46	-	100.0
TOTAL	2088	100.0	100.0

* "All Other" responses excluded from percentage calculations.

TABLE IV Distance to Work

Miles	% (freq.)	% (cum.)
less than 10	29.4	
11-20	38.3	67.7
21-30	27.0	94.6
31-65	5.4	100.0

TABLE V Distance to Spouse's Work

Miles	% (freq.)	% (cum.)
less than 10	51.6	
11-20	29.8	81.4
21-30	15.6	97.1
31-65	2.9	100.0

TABLE VI Transportation Preference

56.7% would prefer the automobile even if they had a choice of another type of transportation;

19.6% would use public or company bus or rapid transit;

8.7% would walk or bike if given that option:

10.0% would carpool if given that option.

TABLE VII - Year of Car

What year car do you drive?

Year	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
<1960	22	1.1	1.1
1960	12	0.6	1.6
1961	18	0.9	2.5
1962	33	1.6	4.1
1963	35	1.7	5.8
1964	71	3.4	9.2
1965	113	5.5	14.7
1966	129	6.2	21.0
1967	169	8.2	29.2
1968	196	9.5	38.6
1969	264	12.8	51.4
1970	310	15.0	66.4
1971	274	13.3	79.7
1972	391	18.9	98.6
1973	28	1.4	100.0
*All Other	23	-	100.0
TOTAL	2088	100.0	100.0

* "All Other" responses excluded from percentage calculations.

TABLE VIII - Year of Spouse's Car

What year is your spouse's Car?

Year	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
<1960	52	3.3	3.3
1960	20	1.3	4.5
1961	23	1.4	5.9
1962	57	3.6	9.5
1963	77	4.8	14.3
1964	84	5.3	19.6
1965	143	8.9	28.5
1966	134	8.4	36.9
1967	133	8.3	45.2
1968	147	9.2	54.4
1969	190	11.9	66.3
1970	180	11.3	77.6
1971	162	10.1	87.7
1972	177	11.1	98.8
1973	19	1.2	100.0
*All Other	490	-	100.0
TOTAL	2088	100.0	100.0

* "All Other" responses excluded from percentage calculations.

TABLE IX Year of Car

	Responses	% of total
pre-1960	22	1.1
1960-1964	169	8.1
1965-1969	871	42.2
post-1970	1003	48.6
Total	2065	98.9
other	23	1.1
TOTAL	2088	100.0

TABLE X Year of Spouse's Car

	Responses	% of total
pre-1960	52	3.3
1960-1964	261	16.3
1965-1969	747	46.7
post-1970	538	33.7
Total	1598	76.5
other	490	23.5
TOTAL	2088	100.0

TABLE XI - Miles Per Gallon

How many miles per gallon do you obtain from that car?

MPG	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
<8	6	0.3	0.3
8	14	0.7	1.0
9	38	1.9	3.0
10	169	8.7	11.6
11	75	3.8	15.5
12	251	12.9	28.3
13	137	7.0	35.4
14	169	8.7	44.0
15	207	10.6	54.6
16	99	5.1	59.7
17	76	3.9	63.6
18	108	5.5	69.1
19	31	1.6	70.7
20	140	7.2	77.9
21	23	1.2	79.1
22	72	3.7	82.8
23	35	1.8	84.6
24	46	2.4	86.9
25	104	5.3	92.3
26	32	1.6	93.9
27	24	1.2	95.1
28	27	1.4	96.5
29	10	0.5	97.0
30	39	2.0	99.0
31+	19	1.0	100.0
All Other	137	-	100.0
TOTAL	2088	100.0	100.0

TABLE XII - MPG-Spouse's Car

How many miles per gallon are obtained from that car?

MPG	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
<8	5	0.3	0.3
8	21	1.4	1.7
9	14	0.9	2.7
10	129	8.7	11.3
11	50	3.4	14.7
12	178	11.9	26.6
13	84	5.6	32.3
14	126	8.5	40.7
15	187	12.5	53.3
16	88	5.9	59.2
17	67	4.5	63.6
18	112	7.5	71.2
19	15	1.0	72.2
20	129	8.7	80.8
21	12	0.8	81.6
22	41	2.7	84.4
23	26	1.7	86.1
24	28	1.9	88.0
25	81	5.4	93.4
26	21	1.4	94.8
27	13	0.9	95.7
28	22	1.5	97.2
29	2	0.1	97.3
30	28	1.9	99.2
31	10	0.7	99.9
All Other	599	-	100.0
TOTAL	2088	100.0	100.0

TABLE XIII Miles Per Gallon

	Responses	% of total
less than 8	6	0.3
8-10	221	11.3
11-15	839	43.0
16-20	454	23.3
21-25	280	14.4
26-30	132	6.8
more than 31	19	0.9
Total	1951	93.4
other	137	6.6
TOTAL	2088	100.0

TABLE XIV Miles Per Gallon, Spouse

	Responses	% of total
less than 8	5	0.3
8-10	164	11.0
11-15	625	42.0
16-20	411	27.6
21-25	188	12.6
26-30	86	5.8
more than 31	12	0.8
Total	1491	71.4
other	597	28.6
TOTAL	2088	100.0

TABLE XV - JOB CHANGE

Did you move to Cerritos because you changed jobs?

	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
No Answer	8	0.4	0.4
Yes	195	9.3	9.7
No	1881	90.1	99.8
Other	4	0.2	100.0
TOTAL	2088	100.0	100.0

TABLE XVI

Crosstabulation of Distance in Miles to Work by Miles Per Gallon

Distance	Miles Per Gallon							Row Total
	0-5	6-10	11-15	16-20	21-25	26-30	31-65	
0-5	0 0.0 (0.0)	34 16.7 (2.0)	106 52.0 (6.1)	41 20.1 (2.4)	16 7.8 (0.9)	7 3.4 (0.4)	0 0.0 (0.0)	204 11.7
6-10	0 0.0 (0.0)	44 14.4 (2.5)	131 42.8 (7.5)	87 28.4 (5.0)	33 10.8 (1.9)	9 2.9 (0.5)	2 0.7 (0.1)	306 17.6
11-15	0 0.0 (0.0)	45 14.2 (2.6)	135 42.5 (7.7)	67 21.1 (3.8)	48 15.1 (2.8)	21 6.6 (1.2)	2 0.6 (0.1)	318 18.2
16-20	1 0.3 (0.1)	32 9.2 (1.8)	154 x) 44.1 (8.8)	85 24.4 (4.9)	46 13.2 (2.6)	27 7.7 (1.5)	4 1.1 (0.2)	349 20.0
21-25	0 0.0 (0.0)	24 8.3 (1.4)	114 39.6 (6.5)	65 22.6 (3.7)	61 21.2 (3.5)	21 7.3 (1.2)	3 1.0 (0.2)	288 16.5
26-30	0 0.0 (0.0)	10 5.5 (0.6)	57 31.1 (3.3)	45 24.6 (2.6)	45 24.6 (2.6)	19 10.4 (1.1)	7 3.8 (0.4)	183 10.5
31-65	0 0.0 (0.0)	11 11.6 (0.6)	41 43.2 (2.4)	15 15.8 (0.9)	12 12.6 (0.7)	15 15.8 (0.9)	1 1.1 (0.1)	95 5.5
Column Total	1 0.1	200 11.5	738 42.3	405 23.2	261 15.0	119 6.8	19 1.1	1743 100.0

x) out of 1743 cars the largest percentage (20%) or 349 cars are used to drive 16-20 miles to work. Of these 349 cars, 44.1% or 154 cars get 11-15 miles per gallon.

TABLE XVII - Years in Cerritos

How long have you lived in Cerritos?

Years	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
0 - 1/2	258	12.4	12.4
1/2 - 1	346	16.6	29.1
1 - 1 1/2	390	18.8	47.8
1 1/2 - 2	206	9.9	57.7
2 - 2 1/2	165	7.9	65.7
2 1/2 - 3	151	7.3	72.9
3 - 4	359	17.3	90.2
4 - 5	131	6.3	96.5
>5	73	3.5	100.0
*All Other	9	-	100.0
TOTAL	2088	100.0	100.0

*"All Other" responses excluded from percentage calculations.

TABLE XVIII - Years In Previous Home

How long did you live in your previous home?

Years	No. of Responses	Percent of Total (Adjusted)	Cumulative Percent
0 - 1/2	71	3.5	3.5
1/2 - 1	250	12.2	15.7
1 - 1 1/2	164	8.0	23.6
1 1/2 - 2	251	12.2	35.9
2 - 2 1/2	131	6.4	42.3
2 1/2 - 3	176	8.6	50.9
3 - 4	185	9.0	59.9
4 - 5	161	7.8	67.7
>5	662	32.3	100.0
*All Other	37	-	100.0
TOTAL	2088	100.0	100.0

* "All Other" responses excluded from percentage calculations.

TABLE XIX Length of time in Cerritos

Years	Percent
less than 2	57.7
less than 3	72.9
less than 4	96.5
more than 5	3.5

TABLE XX Length of time in previous home

Years	Percent
less than 2	35.9
less than 3	50.9
less than 4	59.9
more than 5	32.3

TABLE XXI

Compare your home in Cerritos to the home from which you moved:

PROXIMITY TO:	Closer	Further	About Same	N.A.	A.O.
Job	439 21.0%	987 47.3%	509 24.4%	143 6.9%	9 0.4
Recreation Area	403 19.3%	346 16.6%	1110 53.2%	225 10.8%	3 0.1%
Schools	697 33.4%	281 13.5%	501 24.0%	551 26.4%	57 2.7%
Shopping	874 41.9%	313 15.0%	796 38.1%	104 5.0%	- -
Parents	344 16.5%	739 35.4%	766 36.7%	212 10.2%	26 1.2%
Spouse's Parents	282 13.5%	668 32.0%	806 38.6%	292 14.0%	39 1.9%
COST	Lower	Higher	About Same	N.A.	A.O.
Property Taxes	78 3.7%	1450 69.5%	148 7.1%	356 17.1%	55 2.6%
QUALITY	Better	Worse	About Same	N.A.	A.O.
Schools	631 30.2%	202 9.7%	506 24.2%	668 32.0%	80 3.8%
Smog	523 25.1%	441 21.1%	1023 49.0%	100 4.8%	- -
Privacy	(more) 1042 49.9%	(less) 341 16.3%	603 28.9%	101 4.8%	- -
Neighborhood	(more desirable) 1444 69.2%	(less desirable) 120 5.7%	411 19.7%	111 5.3%	1 0.0%
SIZE	Larger	Smaller	About Same	N.A.	A.O.
House/Apartment	1707 81.8%	131 6.3%	152 7.3%	96 4.6%	1 0.0%
Yard	840 40.2%	899 43.1%	208 10.0%	136 6.5%	4 0.2%
SAFETY	More Safe	Less Safe	About Same	N.A.	A.O.
Crime	933 44.7%	189 9.1%	838 40.2%	122 5.8%	5 0.2%

TABLE XXII

What was the greatest disadvantage of your former home?

	Responses	Percentage of Total
NONE	58	2.8
TOTAL	58	2.8
QUALITY OF DOMICILE	33	1.6
Modernity, Age	89	4.3
Privacy	40	1.9
Dwelling space (rooms, etc.)	734	35.2
Comfortable, pleasant	1	0.0
Outdoor amenities (yard, pool, garage)	40	1.9
Indoor amenities (dishwasher, etc.)	15	0.7
Design, architecture	21	1.0
TOTAL	973	46.6
QUALITY OF NEIGHBORHOOD - PHYSICAL	37	1.8
Location	53	2.5
Age	16	0.8
Traffic	20	1.0
Convenience	3	0.1
TOTAL	129	6.2
QUALITY OF NEIGHBORHOOD - SOCIAL	36	1.7
Age of Neighbors	4	0.2
Interests of neighbors	10	0.5
"Community" Feeling	7	0.3
Ethnic composition	18	0.9
Schools	8	0.4
Recreation	2	0.1
Cultucal activities	1	0.0
Safety	26	1.2
TOTAL	112	5.4
QUALITY OF ENVIRONMENT	16	0.8
Weather	13	0.6
Air pollution	14	0.7
Noise pollution	36	1.7
TOTAL	79	3.8

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	Responses	Percentage of Total
PROXIMITY TO EXTERNAL RESOURCES	8	0.4
Distance to work	47	2.3
Distance to school	3	0.1
Distance to shopping	8	0.4
Distance to relatives	6	0.3
TOTAL	72	3.5
ECONOMIC FACTORS	8	0.4
Owning home	3	0.1
Renting apartment, home	441	21.1
Landlord	8	0.4
Repairs	3	0.1
Investment	3	0.1
Taxes	9	0.4
Property values	2	0.1
Job	2	0.1
TOTAL	479	22.9
NO ANSWER	155	7.4
TOTAL	155	7.4
ALL OTHER, MISCELLANEOUS	31	1.5
TOTAL	31	1.5

TABLE XXIII

What is the greatest advantage of your present home?

	Responses	Percentage of Total
NONE	47	2.3
TOTAL	47	2.3
QUALITY OF DOMICILE	46	2.2
Modernity, Age	113	5.4
Privacy	126	6.0
Dwelling space (rooms, etc.)	760	36.4
Comfortable, pleasant	25	1.2
Outdoor amenities (yard, pool, garage)	52	2.5
Indoor amenities (dishwasher, etc.)	25	1.2
Design, architecture	23	1.1
TOTAL	1170	56.0
QUALITY OF NEIGHBORHOOD-PHYSICAL	28	1.2
Location	71	3.4
Age	8	0.4
Traffic	10	0.5
Convenience	7	0.3
Parks	1	0.0
TOTAL	125	5.8
QUALITY OF NEIGHBORHOOD-SOCIAL	29	1.4
Age of neighbors	9	0.4
Interests of neighbors	7	0.3
"Community" Feeling	8	0.4
Ethnic composition	8	0.4
Schools	17	0.8
Recreation	2	0.1
Safety	16	0.8
TOTAL	96	4.6
QUALITY OF ENVIRONMENT	21	1.0
Age of neighbors	2	0.1
Weather	10	0.5
Air Pollution	6	0.3
Noise Pollution	15	0.7
TOTAL	54	2.6

	Responses	Percentage of Total
PROXIMITY TO EXTERNAL RESOURCES	15	0.7
Distance to work	50	2.4
Distance to school	11	0.5
Distance to shopping	14	0.7
Distance to recreation	1	0.0
Availability of public transportation	1	0.0
Distance to relatives	5	0.2
TOTAL	97	4.5
ECONOMIC FACTORS	2	0.1
Owning home	231	11.1
Renting apartment, home	2	0.1
Landlord	2	0.1
Investment	37	1.8
Taxes	20	1.0
Property values	1	0.0
Job	1	0.0
TOTAL	296	14.2
NO ANSWER	171	8.2
TOTAL	171	8.2
ALL OTHER, MISCELLANEOUS	32	1.8
TOTAL	32	1.8

TABLE XXIV - Preference for Density

Provided jobs were available, where would you prefer to live?

	Responses	Percentage of Total
Small Town	479	22.9
*rural area	38	1.8
wilderness	8	0.4
suburb	15	0.7
average city	5	0.2
TOTAL in Category	545	26.0
Rural Area	352	16.9
small town	2	0.1
wilderness	9	0.4
suburb	8	0.4
large city	1	0.0
average city	2	0.1
TOTAL in Category	374	17.9
Wilderness	99	4.7
suburb	3	0.1
large city	2	0.1
average city	4	0.2
TOTAL in Category	108	5.1
Suburb	630	30.2
large city	5	0.2
average city	15	0.7
TOTAL in Category	650	31.1
Large City	43	2.1
average city	1	0.0
TOTAL in Category	44	2.1
Average City	308	14.8
rural area	1	0.0
TOTAL in Category	309	14.8
no answer	51	2.4
don't know	3	0.1
all other	3	0.1

* Those answers in major category indicate first choice. Sub-categories indicate second choice of respondents.

TABLE XXV

Provided jobs were available, in which state would your family most enjoy living?

Choices	Responses
NEW ENGLAND	14
Maine	5
New Hampshire	1
Vermont	3
Massachusetts	8
Rhode Island	1
Connecticut	2
TOTAL	34
% OF TOTAL	1.6
MIDDLE ATLANTIC	
New York	9
New Jersey	1
Pennsylvania	6
TOTAL	16
% OF TOTAL	.7
EAST NORTH CENTRAL	5
Indiana	4
Illinois	3
Michigan	5
Wisconsin	7
TOTAL	24
% OF TOTAL	1.1
WEST NORTH CENTRAL	2
Minnesota	9
Iowa	6
Missouri	10
North Dakota	2
South Dakota	2
Nebraska	4
Kansas	4
TOTAL	39
% OF TOTAL	1.9

Choices	Responses
SOUTH ATLANTIC	1
Maryland	3
Virginia	2
North Carolina	4
Georgia	3
Florida	12
TOTAL	25
% OF TOTAL	1.2
EAST SOUTH CENTRAL	
Tennessee	2
Alabama	1
TOTAL	3
% OF TOTAL	.4
WEST SOUTH CENTRAL	
Arkansas	8
Louisiana	1
Oklahoma	1
Texas	15
TOTAL	25
% OF TOTAL	1.2
MOUNTAIN	3
Montana	18
Idaho	23
Wyoming	7
Colorado	96
New Mexico	5
Arizona	60
Utah	19
Nevada	13
TOTAL	244
% OF TOTAL	1.7
PACIFIC	10
Washington	50
Oregon	180
California	1049
California (Southern)	22
California (Northern)	68
Alaska	4
Hawaii	67
TOTAL	1450
% OF TOTAL	69.4

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Choices	Responses
ALL OTHER	13
Canada	1
Asia	1
Australia	1
None, no answer	180
Don't know	32
TOTAL	228
% OF TOTAL	10.9